EA APPENDIX C

COMPENSATORY MITIGATION PLAN

ENVIRONMENTAL ASSESSMENT FOR THE OQUAWKA REACH:
LOCK 18 UPPER, FURNAL ISLAND, AND OQUAWKA DREDGE CUTS
UPPER MISSISSIPPI RIVER MILES 411.0 – 415.2

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BACKGROUND

The mitigation plan proposed for this project was developed through an interagency planning team comprised of representatives from the District (U.S. Army Corps of Engineers, Rock Island District), the U.S. Fish and Wildlife Service, and other State and Federal natural resource and regulatory agencies. It follows the District's *Guidance for Section 404 Mitigation for Operations and Maintenance Activities*, which is on file at the Rock Island District. This Guidance is based on applicable environmental and planning regulations, legislative acts, executive orders, and agreements.

The Oquawka Reach DMMP (dredged material management plan) includes the Lock 18 Upper, Furnal Island, and Oquawka Dredge Cuts. Dredged material from these dredge cuts would be placed at Placement Sites 3, 5, and 8, as described in the main text of this Environmental Assessment. Approximately 1.1 acres of wetlands would be impacted at Site 3 and the access area between Sites 5 and 8.

The District proposes to create approximately 1.1 acres of wetlands within an existing farm field in order to replace the wetland functions and values lost as a result of implementation of the Oquawka DMMP (see plate EA-C-1). The Natural Resources Conservation Service made a preliminary determination in January 2002 that the mitigation site is a prior converted non-wetland area. The 1.1-acre area is surrounded by wetter areas of the field dominated by hydrophytic species and hydric soils. The 1.1-acre area is dominated by upland plant species and has a 6- to 12-inch sandy loam layer over the silty clay loam soils found to the surface in the wetter portions of the field. This sandy loam layer will be excavated to replicate the wetter conditions located adjacent to the site. The proposed mitigation site is located behind the Iowa River-Flint Creek Levee in Des Moines County, Iowa, at RM 422 and just north of the Hawkeye Dolbee Diversion Ditch. It is in Section 21, Township 72N, Range 1W.

If this proposed compensatory mitigation plan is found to be unworkable for any reason prior to implementation, the District would coordinate with the State and Federal natural resources and regulatory agencies in order to establish an alternative mitigation plan in a timely manner.

GOALS/OBJECTIVES

The goal of this mitigation plan is to:

- Replace the wetland functions and values lost as a result of impacts to 1.1 acres of wetlands at Site 3 and the access area between Sites 5 and 8. These wetland functions and values include:
  - Sediment and toxicant retention
  - Nutrient removal/retention/transformation
  - Wildlife habitat for small birds, mammals, and amphibians

That goal will be met through the following objectives, to be measured approximately 2 years after cessation of farming practices at the 1.1-acre mitigation site:

- The successful excavation of 6 to 12 inches of sandy loam soils
- The establishment of a diverse, native, wetland plant community
- The establishment of wetland hydrology
- Less than 10% coverage of Reed Canary Grass *(Phalaris arundinacea)*

WETLAND IMPACTS

Approximately 1.0 acre of wet meadow/scrub-shrub wetlands would be impacted at Site 3, and approximately 0.1 acre of forested wetlands would be impacted to create an access area between Sites 5 and 8. The wetland delineation report for Site 3 lists three wetland functions and values present at Site 3. The sediment and toxicant retention function is present in the wetlands at Site 3 due to the capacity of the wetlands to catch and hold the sediments eroding from the existing levee adjacent to Site 3 and their ability to trap pesticide runoff from the adjacent agricultural fields during rain events. The nutrient removal/retention/transformation function is present in the wetlands at Site 3 through the ability of the diverse vegetation and the microbiology of the wetland soils to trap and process excess nutrients from fertilizer applied to the adjacent agricultural fields that run off the fields and enter the wetlands. The wetlands have low opportunity to perform this function, however, due to the relatively flat nature of the fields and wetlands and the presence of a ditch at the other side of the fields where much of the runoff most likely ends up. The wildlife habitat function is present due to the ability of small birds, mammals, and amphibians to occasionally use the scattered patches of ponded water as a source of drinking water and to utilize the diverse vegetation as a food source and potential nesting area. The access area between Sites 5 and 8 has a wildlife habitat function due to its diverse vegetation and potential source of food and cover for a variety of wildlife.

AVOIDANCE

Avoidance requires that no discharge of dredged or fill material be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences. Approximately 6 acres of wetlands is located within Site 2 Expanded, which was considered as a placement site. That site has been removed from this plan in order to avoid those wetland impacts.

MINIMIZATION

Minimization requires that projects be designed, to the extent practicable, to minimize unavoidable adverse impacts to the aquatic ecosystem by limiting the degree or magnitude of the action and its implementation. The current plan minimizes wetland impacts at Site 3, which has unavoidable wetland impacts, by using mechanical placement in the upper portion of the site to avoid potential impacts to the wetlands in that area from sediment in return water associated with hydraulic dredging. In addition, approximately 16 acres of wetlands are located within the original limits of Site 8. These wetland impacts would be minimized in the current plan, which includes impacts to approximately 0.1 acre of wetlands to create an access area between the Mississippi River and Site 8.

Avoidance and Minimization as addressed in the previous sections conform to conditions found in Section 230.10 of the Section 404(b)(1) Guidelines and Rock Island District, Corps of Engineers *Guidance for Section 404 Mitigation for Operations and Maintenance Activities*. For additional information on the placement sites considered and the decision factors involved in avoiding and minimizing wetland impacts, please refer to Table EA-4, EA Section III. Alternatives, EA Section VII. Probable Adverse Environmental Impacts that Cannot Be Avoided, and the 404(b)(1) Evaluation, Section 2 - Factual Determinations.

COMPENSATORY MITIGATION

a. PLAN - A 1.1-acre area is proposed for this plan. The purpose of compensatory mitigation is to replace the wetland functions and values to be lost as a result of wetland fills associated with the proposed project. The wetland functions and values listed in the Goals/Objectives section of this mitigation plan would be created at the proposed compensatory mitigation site. The site is currently a farm field that has been identified by the Natural Resources Conservation Service as prior converted cropland. Farming would cease within the mitigation site, 1.1 acres of sandy loam would be excavated within the top 6 to 12 inches of the site, and wetland vegetation would become established from the existing seed bank.

The 1.1-acre mitigation site is located within an approximately 36-acre farm field. The western boundary of the field is a drainage ditch, and a drainage tile outlet was located within this drainage ditch during a May 6, 2002, site visit by District personnel. The western half of the farm field appears to be better drained than the eastern portion, which includes the 1.1-acre mitigation site. This may indicate that the existing drainage tiles are better functioning in the western portion of the field than in the areas adjacent to the mitigation site, or that the drainage tiles do not extend that far east. Any drainage tiles found to be functioning within the mitigation site would be broken as part of this mitigation plan, but it does not appear that any functioning drainage tiles are currently present within the mitigation site.

The soils in the 16.1-acre field site are Zook and Titus silty clay loams with 0% to 2% slopes and with sand inclusions. District personnel verified the presence of these soils during the May 6, 2002, site visit. The sand inclusions were found to be present in areas dominated by upland plant species such as wild strawberry (*Fragaria virginiana*), dandelion (*Taraxacum officinale*), and sweet clover (*Melilotus* sp.), and in these areas a layer of sandy loam was primarily found in the top 6 to 12 inches of the soil column. Silty clay loam soils were found below the sandy loam. Much of the area outside of these sand inclusions was dominated by hydrophytic plant species such as various sedges (*Carex* sp.), spike rushes (*Eleocharis* sp.), pale dock (*Rumex altissimus*), smartweed (*Polygonum* sp.), and cottonwood (*Populus deltoides*) seedlings.

Implementation of the mitigation plan would include the purchase of the 1.1-acre mitigation site and the cessation of all farming activities within that area. It is expected that the existing seed bank will cause the site to become revegetated with species that will allow for a transition from an herbaceous to a scrub-shrub to a floodplain forest community. The 1.1-acre mitigation site would become wetland as defined by the 1987 Corps of Engineers Wetland Delineation Manual. Management of the 1.1-acre mitigation site would be turned over to the Iowa DNR.

b. SCHEDULE - The goal of the mitigation plan is to acquire the mitigation site prior to wetland alteration. The private landowner has indicated a willingness to work with the District toward acquiring and developing the mitigation site. The District anticipates acquiring and initiating site preparation for dredged material placement at Site 8 and Site 3 during the 2004 dredging season.

c. MONITORING/MAINTANCE - Approximately 1.1 acres of existing farm field is proposed to be converted to wetland as compensatory mitigation for the Oquawka DMMP, and that area will be monitored for the first 2 or more years after cessation of farming in accordance with this mitigation plan. If the vegetative community that becomes established within 2 years of cessation of farming does not meet the goals and objectives as stated above, the District would reevaluate the mitigation site and perform remedial actions as necessary to achieve those goals and objectives. Remedial actions may include chemical and/or mechanical control of invasive species, planting and/or seeding of wetland trees, shrubs, or herbaceous vegetation, and excavation to reach the water table at the site. Once the goals and objectives are achieved, the area would be turned over to the Iowa DNR for ongoing maintenance and management.